

SPECIFICATION

ACROSS-THE-LINE AND INTERFERENCE SUPPRESSION CAPACITORS CLASS X1 -500VAC

1. REFERENCE STANDARDS: UL 60384-14, CSA C22.2
USED FOR ACROSS-THE LINE CAPACITORS, ANTENNA-COUPLING AND LINE-BY-PASS COMPONENTS.
ENEC EN 60384-14 : 2005

USED FOR RADIO INTERFERENCE SUPPRESSION CAPACITORS.
2. RATED VOLTAGE : 500 VAC, 50 ~ 60 Hz
3. CAPACITANCE RANGE : 0.0047 μ F ~ 4.0 μ F
4. CAPACITANCE TOLERANCE : J (\pm 5%), K (\pm 10%), M (\pm 20%), U (+10-5%)
5. DIELECTRIC : METALLIZED POLYPROPYLENE FILM
6. DISSIPATION FACTOR TAN δ : LESS THAN 0.1% AT 1K Hz/20 $^{\circ}$ C

VOLTAGE 1.0 VAC (CAPACITANCE : 1K Hz/20 $^{\circ}$ C, VOLTAGE 1.0 VAC)
7. INSULATION RESISTANCE : BETWEEN TERMINALS
 - (1) LESS THAN OR EQUAL TO 0.33 μ F \cong 3 x 10⁴ M Ω
 - (2) GREATER THAN 0.33 μ F \cong 1 x 10⁴ M Ω / μ FMEASURED AT 100 \pm 15 VDC, 60 Sec./20 $^{\circ}$ C
8. WITHSTAND VOLTAGE :
 - a) BETWEEN TERMINALS.... 1892VDC FOR 60 Sec.OR 2400VDC FOR 1 Sec.
CUT-OFF CURRENT : 10mA
 - b) BETWEEN TERMINALS AND CASE....2380 VAC 60 Hz FOR 60 Sec.
9. CLIMATIC CATEGORY : IN ACCORDANCE WITH DIN 40040 GMF
G (MINIMUM LIMIT TEMPERATURE) = - 40 $^{\circ}$ C
L (MAXIMUM LIMIT TEMPERATURE) = + 110 $^{\circ}$ C
F (HUMIDITY CATEGORY) = AVERAGE RELATIVE HUMIDITY \cong 75%

95% FOR 30 DAYS PER YEAR CONTINUOUSLY

85% FOR THE REMAINING DAYS OCCASIONALLY
10. DRY HEAT RESISTANCE :
IN ACCORDANCE WITH DIN 40046 SHEET 1 OR IEC 68-2-2 TEST BA. CONDITIONS
TEST TEMPERATURE : 110 \pm 2 $^{\circ}$ C
TEST DURATION : 16 HOURS
TEST CRITERIA :
 - (1) APPEARANCE : NO VISIBLE DAMAGE AND NO LEAKAGE

(2) WITHSTAND VOLTAGE : 0.66 x RATED WITHSTAND VOLTAGE 60 Sec.

(3) CAPACITANCE CHANGE : $\cong \pm 5\%$ OF THE INITIAL VALUE

(4) INSULATION RESISTANCE : $\cong 50\%$ OF INITIAL SPECIFIED VALUE

11. COLD RESISTANCE :

IN ACCORDANCE WITH DIN 40046 SHEET 1 OR IEC 68-2-1 TEST BA. CONDITIONS

TEST TEMPERATURE : -40 ± 2 °C

TEST DURATION : 2 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE

(2) WITHSTAND VOLTAGE : 0.66 x RATED WITHSTAND VOLTAGE 60 Sec.

(3) CAPACITANCE CHANGE : $\cong \pm 5\%$ OF THE INITIAL VALUE

12. HUMIDITY TEST CONDITIONS :

TEST TEMPERATURE : 40 °C ± 2 °C

RELATIVE HUMIDITY : 90 – 95 %

TEST DURATION : 500 HOURS

TEST CRITERIA :

(1) WITHSTAND VOLTAGE : 0.66 x RATED WITHSTAND VOLTAGE 60 Sec.

(2) CAPACITANCE DRIFT : $\cong \pm 5\%$ OF THE INITIAL VALUE

(3) DISSIPATION FACTOR : $\cong 200\%$ OF INITIAL SPECIFIED VALUE

(4) INSULATION RESISTANCE : $\cong 50\%$ OF INITIAL SPECIFIED VALUE

13. LIFE TEST CONDITIONS :

TEST TEMPERATURE : 110 °C ± 3 °C

TEST VOLTAGE : 625 VAC AND 1,000 VAC/60 HZ FOR A PERIOD OF 0.1 Sec. ONCE EACH HOUR

TEST DURATION : 1,000 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE AND NO LEAKAGE

(2) WITHSTAND VOLTAGE : 0.66 x RATED WITHSTAND VOLTAGE 60 Sec.

(3) CAPACITANCE DRIFT : $\cong \pm 10\%$ OF THE INITIAL VALUE

(4) DISSIPATION FACTOR : $\cong 0.6 \times 10$ (0.06 %) OF INCREASED VALUE

(5) INSULATION RESISTANCE : $\cong 50\%$ OF SPECIFIED VALUE

14. SOLDERABILITY CONDITIONS :

SOLDER BATH TEMPERATURE & MATERIAL :

230 ± 5 °C, 60 % OF TIN (Sn) + 40 % OF LEAD (Pb)

SOLDER BATH TEMPERATURE & MATERIAL :

270 ± 5 °C, 99.96 % OF TIN (Sn) + 0.04 % OF SILVER (Ag)

SOLDER TIME : 3 ± 0.5 Sec. TEST CRITERIA :75% OF THE SURFACE TINNING

15. SOLDERING HEAT RESISTANCE :

IN ACCORDANCE WITH DIN 40046 SHEET 18 OR IEC 68-2-20 TEST TA.1 & TB.1

CONDITIONS

SOLDER BATH TEMPERATURE : 260 ± 5 °C

SOLDER TIME : 5 ± 1 Sec.

CAPACITANCE BODY MAY LIE ON PRINTING CIRCUIT BOARD

TEST CRITERIA :

(1) APPEARANCE : NO DAMAGE AND GOOD TINNING

(2) CAPACITANCE CHANGE : $\leq \pm 3$ % OF THE INITIAL VALUE

16. VIBRATION RESISTANCE :

IN ACCORDANCE WITH DIN 40046 SHEET 8 OR IEC 68-2-6 TEST FC CONDITIONS

FREQUENCY RANGE : 10 - 55 HZ

DISPLACEMENT AMPLITUDE : 0.75 mm

CONFORMING TO MAX. : 10 g

TEST DURATION : 6 HOURS

TEST CRITERIA :

(1) APPEARANCE : NO VISIBLE DAMAGE

(2) CAPACITANCE CHANGE : $\leq \pm 2$ % OF THE INITIAL VALUE

17. TENSILE STRENGTH OF TERMINALS

IN ACCORDANCE WITH DIN 40046 SHEET 19 OR IEC 68-2-21 TEST UA.1

CONDITIONS

TERMINAL	LOAD FORCE	HOLDING TIMES
DIA. (mm)	KG (N)	Sec.
≤ 0.5	0.5 (5)	10
> 0.5 TO < 0.8	1.0 (10)	10
> 0.8	2.0 (20)	20

TEST CRITERIA : NO WIRE BREAKAGE AND NO DAMAGE OF CAPACITOR

18. BENDING OF TERMINALS

IN ACCORDANCE WITH DIN 40046 SHEET 19 OR IEC 68-2-21 TEST UB. CONDITIONS

LOAD FORCE : 0.5 KG (5N)

BENDING TIME : TWO CONSECUTIVE BENDS (4 x 90 °C)

TEST CRITERIA : NO WIRE BREAKAGE AND DAMAGE OF CAPACITOR

19. APPROVED BY :

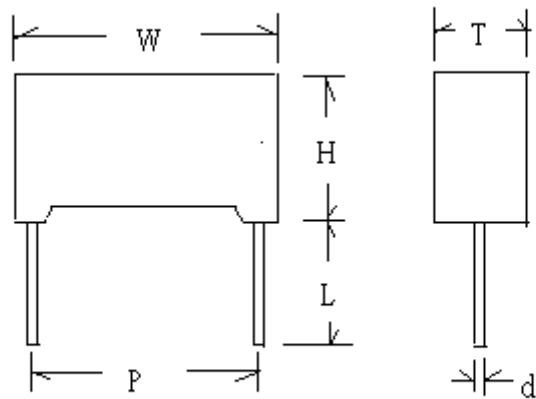
UL \ CUL FILE NO. E193049 (0.0047uF~4.0uF/500V)

20. MARKING :

CAPACITORS ARE MARKED WITH TYPE IDENTIFICATION CAPACITANCE, CAPACITANCE TOLERANCE, RATED VOLTAGE, TEMPERATURE RANGE, NAME OF MANUFACTURE, DATE OF MANUFACTURE AND APPROVED CERTIFICATION MARKS.

Marking Example:

0.0047 ~ 4.0 uF



Product No.	Capacitance	Rated-Voltage	PVC Wire(W±0.75)			Dimensions in mm	
	uF	VAC	W±0.5	H±0.5	T±0.5	P±0.5	d±0.05
CTX472K500VP10	0.0047	500	13	11	5	10	0.6
CTX472K500VP15	0.0047	500	18	10	5	15	0.8
CTX562K500VP10	0.0056	500	13	11	5	10	0.6
CTX562K500VP15	0.0056	500	18	10	5	15	0.8
CTX682K500VP10	0.0068	500	13	11	5	10	0.6
CTX682K500VP15	0.0068	500	18	10	5	15	0.8
CTX822K500VP10	0.0082	500	13	11	5	10	0.6
CTX822K500VP15	0.0082	500	18	10	5	15	0.8
CTX103K500VP10	0.01	500	13	11	5	10	0.6
CTX103K500VP15	0.01	500	18	10	5	15	0.8
CTX123K500VP10	0.012	500	13	11	5	10	0.6
CTX123K500VP15	0.012	500	18	10	5	15	0.8
CTX153K500VP10	0.015	500	13	12	6	10	0.6
CTX153K500VP15	0.015	500	18	10	5	15	0.8
CTX183K500VP10	0.018	500	13	12	6	10	0.6
CTX183K500VP15	0.018	500	18	10	5	15	0.8
CTX223K500VP10	0.022	500	12	14	8	10	0.6
CTX223K500VP15	0.022	500	17	11	5.5	15	0.8
CTX273K500VP10	0.027	500	12	14	8	10	0.6
CTX273K500VP15	0.027	500	17	11	5.5	15	0.8
CTX333K500VP10	0.033	500	18	12	6	15	0.8
CTX393K500VP15	0.039	500	18	13.5	6	15	0.8
CTX473K500VP15	0.047	500	18	13.5	6	15	0.8
CTX563K500VP15	0.056	500	18	13.5	7.5	15	0.8
CTX563K500VP225	0.056	500	25	14.5	6	22.5	0.8
CTX683K500VP15	0.068	500	17	15.5	7.5	15	0.8
CTX683K500VP225	0.068	500	25	14.5	6	22.5	0.8
CTX823K500VP15	0.082	500	18	16.5	8.5	15	0.8
CTX823K500VP225	0.082	500	25	14.5	6	22.5	0.8
CTX104K500VP15	0.1	500	17	16.5	9.5	15	0.8
CTX104K500VP225	0.1	500	26.5	16.5	7	22.5	0.8
CTX124K500VP15	0.12	500	17	19	11	15	0.8
CTX124K500VP225	0.12	500	26.5	16.5	7	22.5	0.8
CTX154K500VP15	0.15	500	17	19	11	15	0.8
CTX154K500VP225	0.15	500	26.5	17	8.5	22.5	0.8
CTX184K500VP15	0.18	500	17	21	12	15	0.8
CTX184K500VP225	0.18	500	25	19	8.5	22.5	0.8
CTX224K500VP15	0.22	500	17	16.5	9.5	15	0.8
CTX224K500VP225	0.22	500	26.5	19	10	22.5	0.8

CTX224K500VP275	0.22	500	31.5	20	11	27.5	0.8
CTX274K500VP225	0.27	500	26	22	12	22.5	0.8
CTX274K500VP225	0.27	500	31.5	20	11	27.5	0.8
CTX334K500VP225	0.33	500	26	22	12	22.5	0.8
CTX334K500VP275	0.33	500	30	21	11.5	27.5	0.8
CTX394K500VP225	0.39	500	25	23.5	14	22.5	0.8
CTX394K500VP275	0.39	500	31.5	22.5	13	27.5	0.8
CTX474K500VP275	0.47	500	31.5	25	14	27.5	0.8
CTX474K500VP325	0.47	500	37	24	13.5	32.5	0.8
CTX564K500VP275	0.56	500	31.5	25	14	27.5	0.8
CTX564K500VP325	0.56	500	37	24	13.5	32.5	0.8
CTX604K500VP275	0.60	500	31	26	18	27.5	0.8
CTX604K500VP325	0.60	500	37	24	13.5	32.5	0.8
CTX684K500VP275	0.68	500	31	26	18	27.5	0.8
CTX684K500VP325	0.68	500	37	26.5	16	32.5	0.8
CTX824K500VP275	0.82	500	31.5	33	18	27.5	0.8
CTX824K500VP325	0.82	500	37	26.5	16	32.5	0.8
CTX105K500VP275	1.0	500	31.5	33	18	27.5	0.8
CTX105K500VP325	1.0	500	37	28.5	18	32.5	0.8
CTX125K500VP325	1.2	500	35.5	31	20	32.5	0.8
CTX125K500VP475	1.2	500	51	27.5	17.5	47.5	0.8
CTX155K500VP325	1.5	500	37	34	22	32.5	0.8
CTX155K500VP475	1.5	500	51	30.5	20	47.5	0.8
CTX185K500VP475	1.8	500	51	30.5	20	47.5	0.8
CTX205K500VP475	2.0	500	51	34	22	47.5	0.8
CTX225K500VP475	2.2	500	51	34	22	47.5	0.8
CTX275K500VP475	2.7	500	51	35	24	47.5	0.8
CTX305K500VP475	3.0	500	51	43.5	29	47.5	0.8
CTX335K500VP475	3.3	500	51	43.5	29	47.5	0.8
CTX395K500VP475	3.9	500	51	43.5	29	47.5	0.8
CTX405K500VP475	4.0	500	51	43.5	29	47.5	0.8